

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY



To:

see form PCT/ISA/220

1/9

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/JP2005/002683

International filing date (day/month/year)
15.02.2005

Priority date (day/month/year)
19.02.2004

International Patent Classification (IPC) or both national classification and IPC
H01M8/06, C01B3/34, C01B3/36, C01B3/48, H01M8/04

Applicant
TOYOTA JIDOSHA KABUSHIKI KAISHA

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2005/002683

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Disclosures:

- D1: EP-A-0 973 220 (TOYOTA JIDOSHA KABUSHIKI KAISHA) 19 January 2000
- D2: WO 99/44252 A (HYDROGEN BURNER TECHNOLOGY, INC) 2 September 1999
- D3: EP-A-1 148 024 (DAIKIN INDUSTRIES, LTD) 24 October 2001 (2001-10-24)
- D4: EP-A-1 233 468 (DELPHI TECHNOLOGIES, INC) 21 August 2002 (2002-08-21)
- D5: US 2001/028966 A1 (KNIGHTS SHANNA D ET AL) 11 October 2001
- D6: PATENT ABSTRACTS OF JAPAN vol. 016, no. 401 (E-1253), 25 August 1992 & JP 04 133271 A (NIPPON TELEGR & TELEPH CORP <NTT>), 7 May 1992
- D7: PATENT ABSTRACTS OF JAPAN vol. 2000, no. 10, 17 November 2000 (2000-11-17) & JP 2000 195534 A (TOYOTA MOTOR CORP), 14 July 2000

- 1.1. Document D1 discloses a fuel cell system, and the method for controlling it, comprising a reformer, a fuel cell, a fuel pump with controlling valve, a cathode pump with controlling valve a controlling device which controls the valves and the generated power quantity. Further the reformed carbon quantity C, the reformed oxygen quantity O, as like as the reformed water quantity S are calculated, and the O/C and S/C ratios are determined, so that they can be kept in a target range. The system also comprises a burner needed for temperature regulation.
- 1.2. Similar to D1, documents D2 and D3 disclose similar controlling method of a fuel cell system.
- 1.3. Document D4 simply discloses a method for controlling a fuel cell system wherein the amounts of fuel oxidant and water feeding the reformer are regulated (their ratio are kept in a target range), depending on the desired voltage output.
- 1.4. Documents D5 and D6 disclose a fuel cell system, and the method for controlling it, comprising a reformer, a fuel cell, a fuel pump with controlling valve, a cathode pump with controlling valve a controlling device which controls the valves and the generated power quantity. Further the reformed carbon quantity C and the reformed oxygen quantity O are calculated, and the O/C ratio is determined, so that it can be kept in a target range.
- 1.5. Document D7 is defining the general state of the art which is not considered to be of

particular relevance.

2. Novelty:

- 2.1. The method of claim 1 seems to lack novelty with respect to D1, D2, D3, D4, D5. Similarly, the fuel cell system of claim 9 seems to lack novelty too.
- 2.2. Furthermore, the subject-matter of claims 2 to 8, and 10 seems to lack novelty too regarding D1, D2 and D3.

3. Clarity:

(Certain observations on the international application)

Typing error on fig. 2 step SO4

In fact it is not clear what should be the difference between present application and known prior art, in particular D1 to D3.

Should the applicant nevertheless regard some particular matter as patentable, an independent claim should be filed taking account of Rule 6.3 PCT. The applicant should also indicate in the letter of reply the difference of the subject-matter of the new claim vis-à-vis said state of the art and the significance thereof.

The applicant is requested to file new claims which take account of the above comments, and without infringing the requirements of Article 34(2)(b) PCT (for amendments, the applicant is requested to clearly identify the amendments carried out, irrespective of whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based). If the applicant regards it as appropriate these indications could be submitted in handwritten form on a copy of the relevant parts of the application as filed.